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PH1090-175L

M/A-COM

Avionics Pulsed Power Transistor - 175 Watts, 1030-1090 MHz, 250 μ s Pulse, 10% Duty



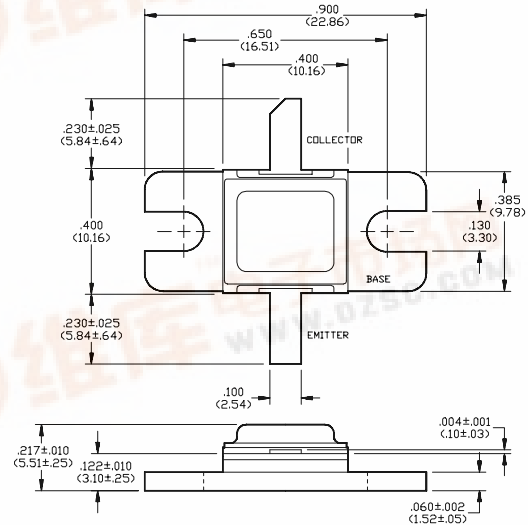
Features

- NPN Silicon Microwave Power Transistor
- Common Base Configuration
- Broadband Class C Operation
- High Efficiency Interdigitated Geometry
- Diffused Emitter Ballasting Resistors
- Gold Metalization System
- Internal Input and Output Impedance Matching
- Hermetic Metal/Ceramic Package

Absolute Maximum Rating at 25°C

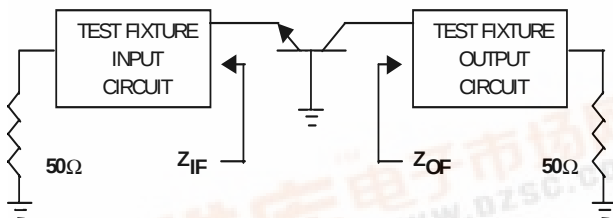
Parameter	Symbol	Rating	Units
Collector-Emitter Voltage	V_{CES}	80	V
Emitter-Base Voltage	V_{EBO}	3.0	V
Collector Current (Peak)	I_C	10.5	A
Total Power Dissipation @ +25°C	P_{TOT}	375	W
Storage Temperature	T_{stg}	-65 to +200	°C
Junction Temperature	T_J	200	°C

Outline Drawing¹



Notes: (unless otherwise specified)

1. Tolerances are: inches $\pm .005$ " (millimeters ± 0.13 mm)



Broadband Test Fixture Impedance

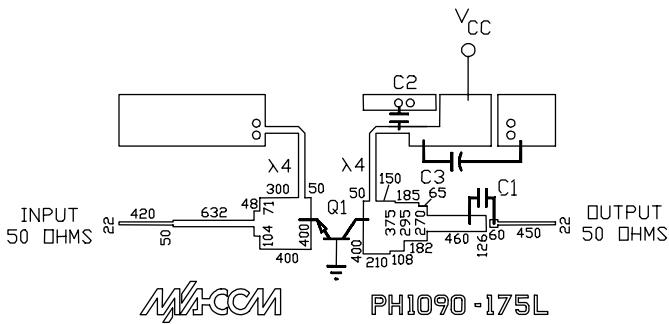
F (MHz)	Z_{IF} (Ω)	Z_{OF} (Ω)
1030	$3.4 + j5.6$	$2.3 + j2.2$
1090	$3.2 + j5.1$	$2.3 + j1.7$

Electrical Specifications at 25°C

Symbol	Parameter	Test Conditions	Min	Max	Units
BV_{CES}	Collector-Emitter Breakdown	$I_C=125$ mA	80	-	V
I_{CES}	Collector-Emitter Leakage	$V_{CE}=45$ V	-	12.5	mA
$R_{TH(JC)}$	Thermal Resistance	$V_{CC}=45$ V, $P_{in}=26$ W, $f=1090$ MHz	-	0.4	°C/W
P_O	Output Power	$V_{CC}=45$ V, $P_{in}=26$ W, $f=1090$ MHz	175	-	W
G_p	Power Gain	$V_{CC}=45$ V, $P_{in}=26$ W, $f=1090$ MHz	8.3	-	dB
η	Collector Efficiency	$V_{CC}=45$ V, $P_{in}=26$ W, $f=1090$ MHz	55	-	%
R_L	Input Return Loss	$V_{CC}=45$ V, $P_{in}=26$ W, $f=1090$ MHz	9	-	dB
VSWR-T	Load Mismatch Tolerance	$V_{CC}=45$ V, $P_{in}=26$ W, $f=1090$ MHz	-	2:1	-
VSWR-S	Load Mismatch Stability	$V_{CC}=45$ V, $P_{in}=26$ W, $f=1090$ MHz	-	1.5:1	-



Electrical Schematic¹



Electrical Schematic Parts List

C1, C2	10 pF ATC Size A
C3	68 uF 63 Volts
Q1	PH1090-175L
Board Type	Rogers 6010.5 .025" thick, E _R = 10.5

Notes:
1. Dimensions in mils.